

Application User Manual

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USER'S GUIDE FOR ISL29177 SENSOR APPLICATION

VVDN Contact:

Bhupender Saharan

VVDN Technologies

+1 408 807 3951

bhupi@vvdntech.com

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Document Owner & Contact:

The primary contact for questions regarding this document is:

Author: Nikhil Sahu

E-mail: nikhil.sahu@vvdntech.com

Website: www.vvdntech.com

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1 Introduction

This Application manual explains the features and usage of “Light Sensor ISL29177 Application” which is developed by VVDN Technologies for Intersil Corporation. This application will be used for isl29177 light sensor during final production, for Windows XP/7/8/8.1 platform.

1.1 Feature:

1. View continuous proximity count as well as proximity ambir count from the light sensor.
2. Configure Light sensor for 5 different proximity sleep values
 - a. 400 ms
 - b. 200 ms
 - c. 100 ms
 - d. 50 ms
 - e. 25 ms
3. Configure sensor for PROX LED driving current in two ways.
 - a. For ISL29177 :
 - 3.6 mA
 - 7.1 mA
 - 10.7 mA
 - 12.5 mA
 - 14.3 mA
 - 15 mA
 - 17.5 mA
 - 20 mA
 - b. For ISL29167 :
 - 50 mA
 - 75 mA
 - 100 mA
 - 120 mA
 - 150 mA
 - 175 mA
 - 200 mA
 - 225 mA
4. Configure Light sensor for 4 different proximity persistency values.
 - a. 1 Conversion data
 - b. 2 Conversion data
 - c. 4 Conversion data
 - d. 8 Conversion data
5. Configure the minimum and maximum interrupt threshold of light sensor.

6. Directly access to three different modes.
 - a. Customer mode
 - b. Register mode
 - c. Engineering mode
7. Offline help for using the application

2 Modifications

1. Application works for both devices ISL29177 as well as ISL29167.
2. Configure Prox LED driving current selection for both ISL29177 and ISL29167 Light sensors.
3. Add software Reset functionality on Customer mode.
4. Capture Sample as 100/500/1000 as customer choice.
5. Adjust samples depends on time interval chooses by customer.
6. Resolve privilege issue, we can install application anywhere in hard drive.
7. We can read/write any particular register without any issue in both register and engineering mode.
8. Assign the value (follow a specified format) in all register through **open file**.

3 Installing the Application

This application is developed to be deployed on Windows xp/7/8/8.1 platform. Necessary updates and software upgradations will be provided for the same in final release with concern to Intersil feedbacks.

Note: Make Sure you have already installed .Net framework version 4.0 or higher on your machine if it is not present.

3.1 Installation files

This archive contains following subdirectories that has the application packages for the following computer architectures.

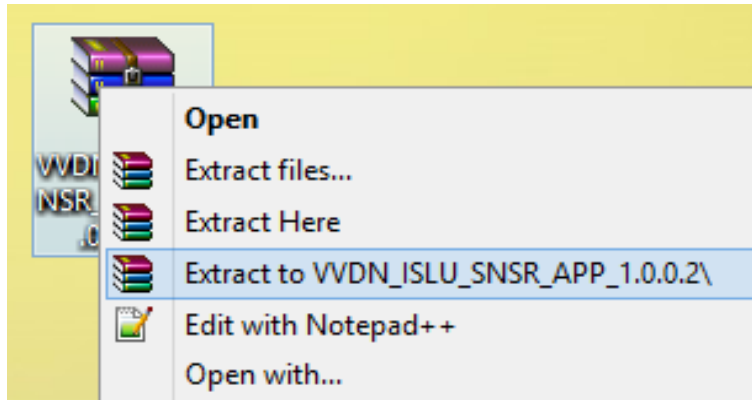
1. Exe file
2. Config file

3.2 Installation procedure

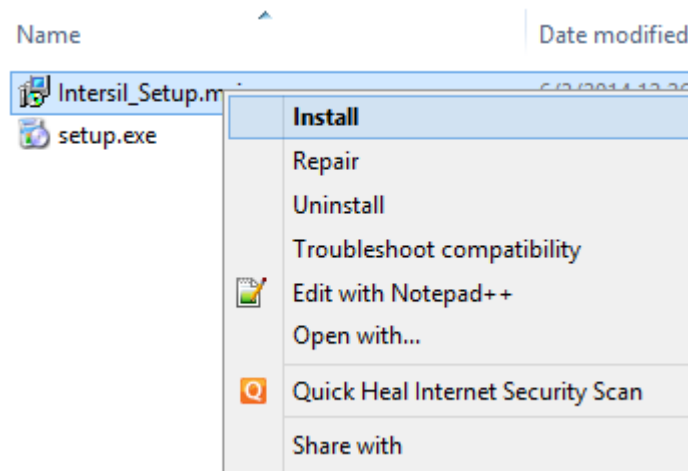
3.2.1 Extracting the files

- Log onto host computer running Windows operating system, using an account with local administrator privileges.

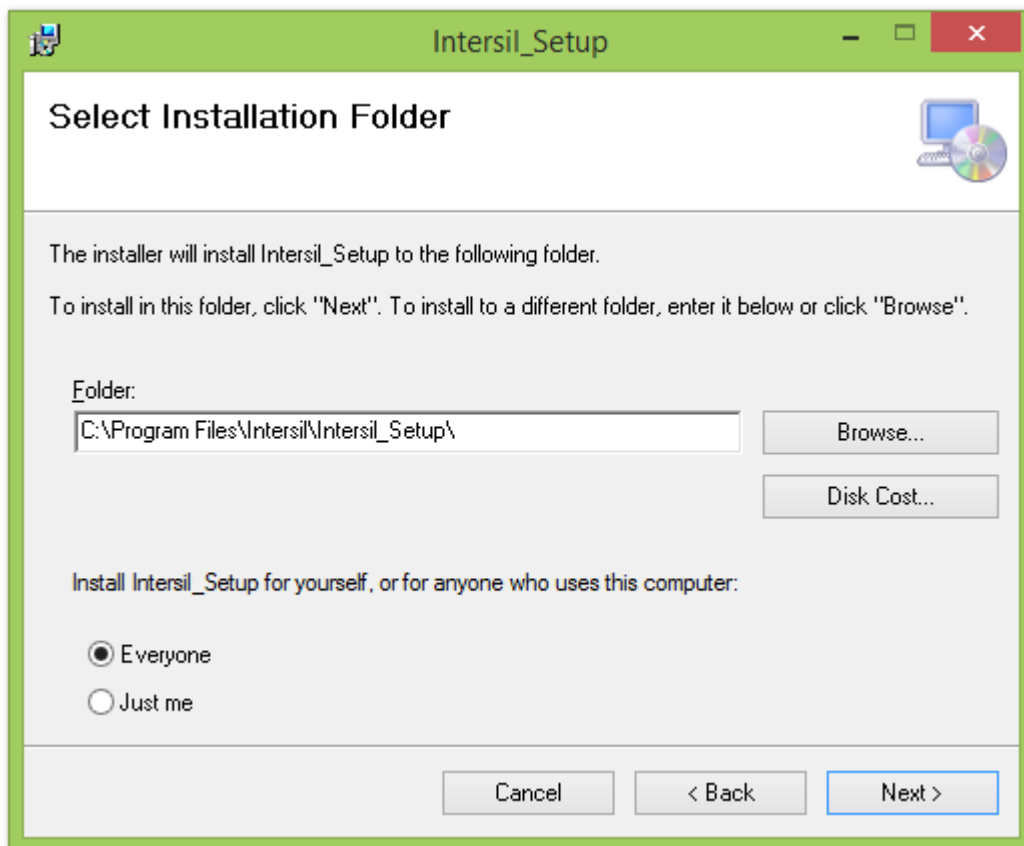
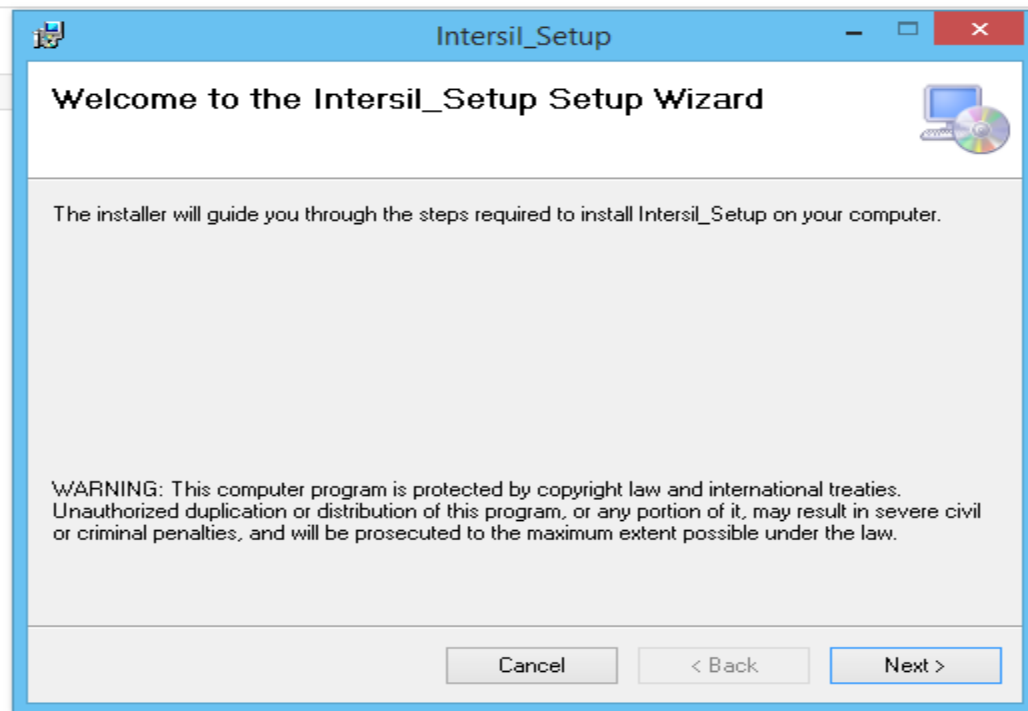
- Copy the application package archive (VVDN_ISLU_SNSR_APP_1.0.0.2.zip) to anywhere in the hard disk.
- Open the appropriate subdirectory as per the host computer architecture.



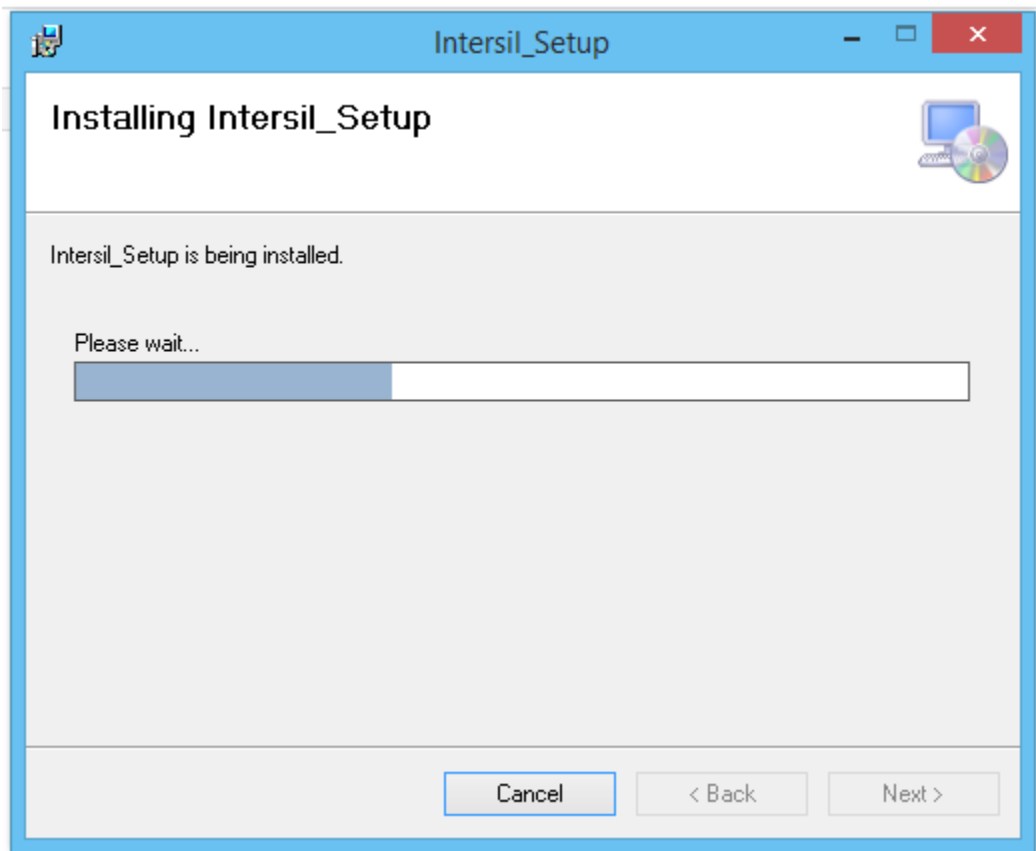
- Install the Application



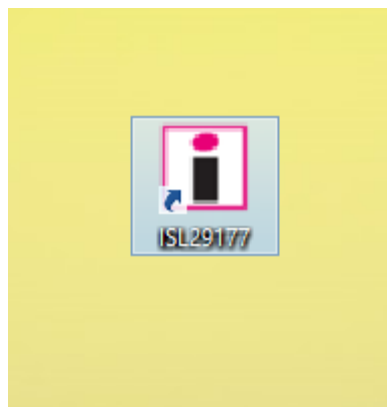
- Press the Next button to continue installation.



- choose the appropriate path where we want to install the application.
-



- After successful installation user should be able to find the application tile on the Start screen. Click on the application tile to run it.



4 Using the Application

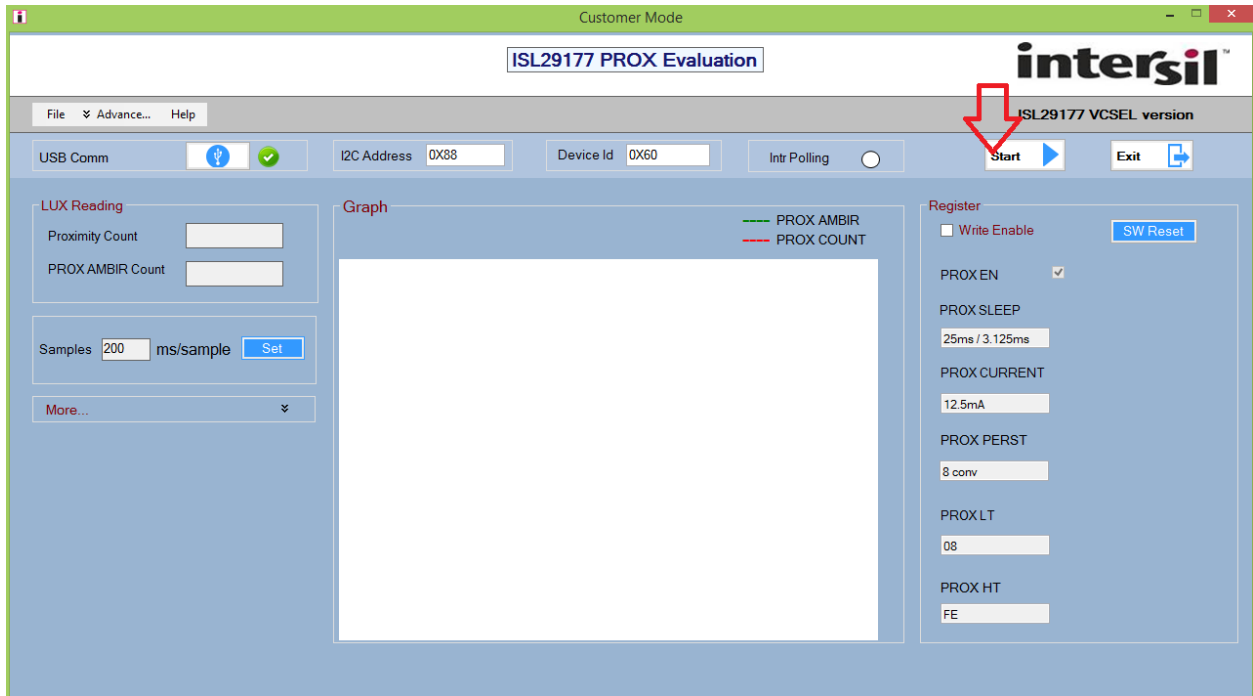
- Now Select the Sensor device as ISL29177 and connect your sensor board with your running machine and press the connect application



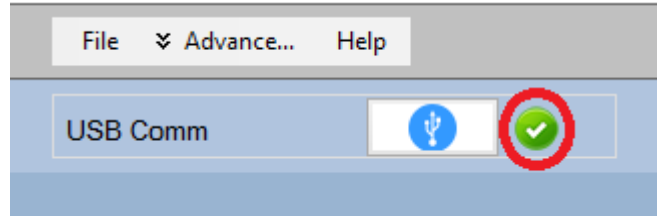
- Press connect button to run the application.



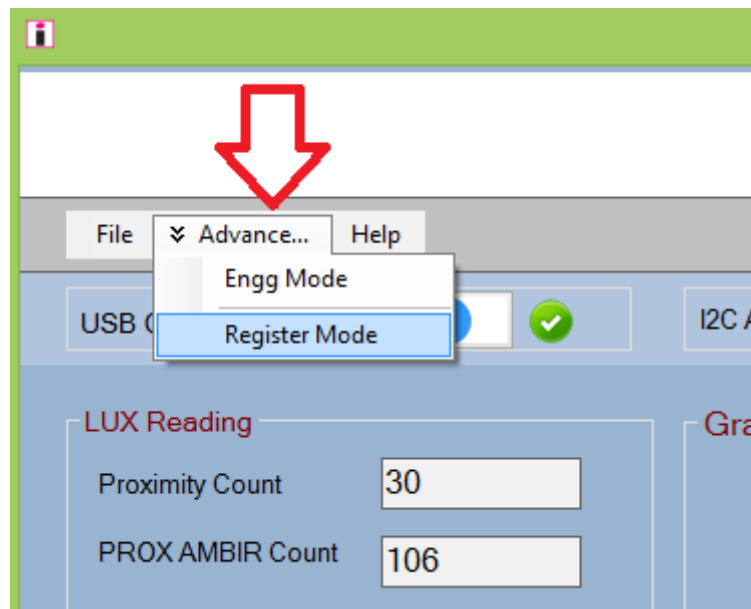
- The below image is your Customer mode configuration. You can easily see your lux reading on the graph by pressing START button which is indicate through red arrow in below image.



- The right tick in Red circle shows that the sensor device connection status.



- User can Enter the Register mode or Engineering mode by selecting the advanced option.



- After Selecting Register mode we will get the below screen

AdvanceConfig



Note : Please Refer ISL29177 Data sheet for specific register value.

0X00	0X61	Read		
0X01	0XF3	Read	0	Write
0X02	0X3F	Read	0	Write
0X03	0X3C	Read	0	Write
0X04	0X08	Read	0	Write
0X05	0XFE	Read	0	Write
0X06	0X04	Read		
0X07	0X28	Read		
0X08	0X6A	Read		
0X09	0X01	Read	0	Write

Advance...
⤴

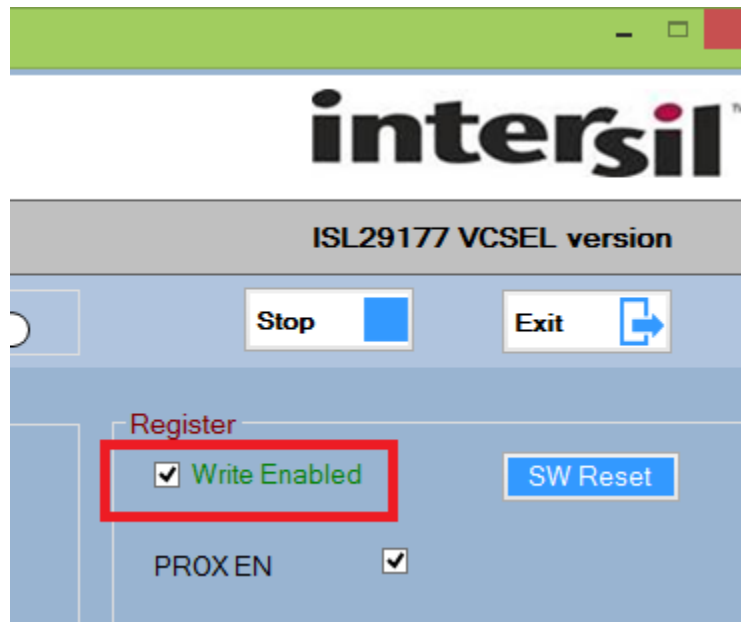
0X0A	0X00	Read		
0X0B	0X00	Read	0	Write
0X0C	0X0E	Read	0	Write
0X0D	0X80	Read	0	Write
0X0E	0X38	Read	0	Write
0X0F	0X40	Read	0	Write

Read All

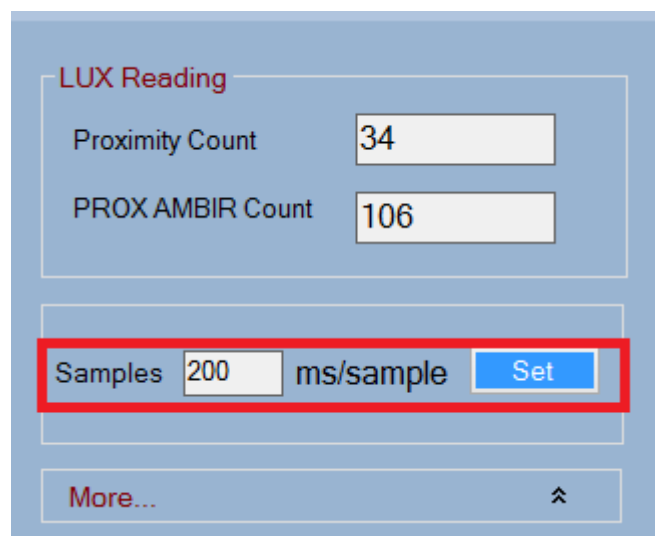
5 Set the configuration

5.1 Customer Mode:

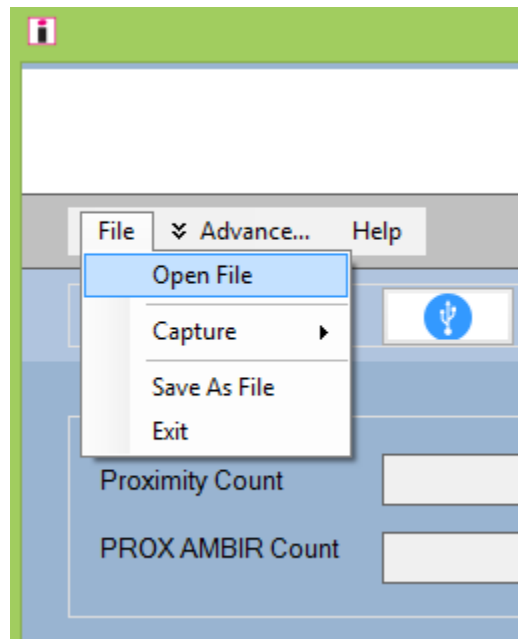
- Tick the write Enable button to enable the register write operation display on customer mode.



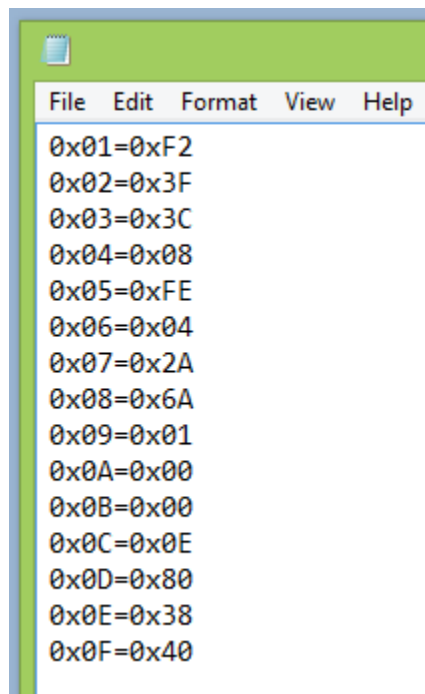
- We can also set the Samples polling delay (like 100ms/200ms/500ms) according to the requirement.



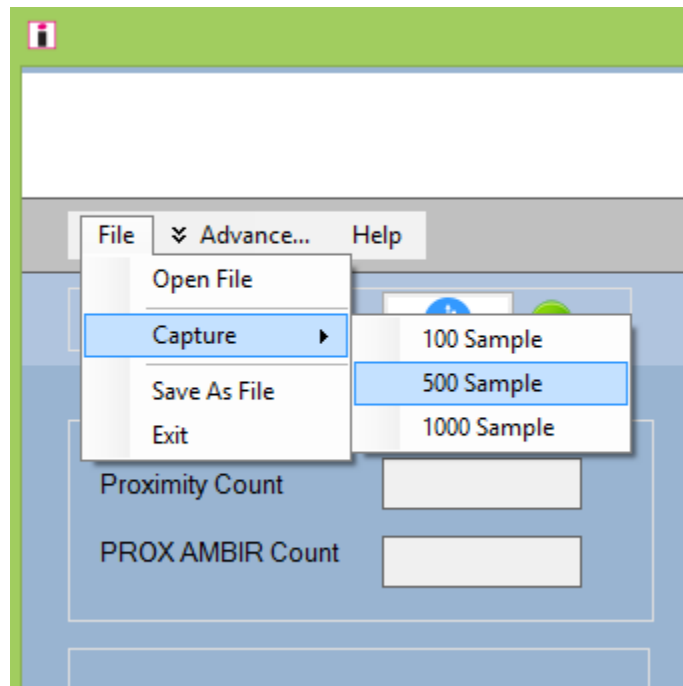
- We can directly assign the values to registers include a text file using open file (followed by a specific format).



- Specified Format are shown below as a .txt file



- User can capture the sample like 100/500/1000 and keep it in a file.



- Highlighted rectangle shows the which device you connected.it can be ISL29177 or ISL29167.



5.2 Advanced (Register) Mode:

- We can read and write particular register and read all the register values at once.



AdvanceConfig

Note : Please Refer ISL29177 Data sheet for specific register value.

Register	Value	Read	Value	Write
0X00		Read		
0X01	0XFF	Read	FF	Write
0X02		Read	0	Write
0X03		Read	0	Write
0X04		Read	0	Write
0X05		Read	0	Write
0X06		Read		
0X07		Read		
0X08		Read		
0X09		Read	0	Write

Advance...

0X0A		Read		
0X0B		Read	0	Write
0X0C		Read	0	Write
0X0D		Read	0	Write
0X0E		Read	0	Write
0X0F		Read	0	Write

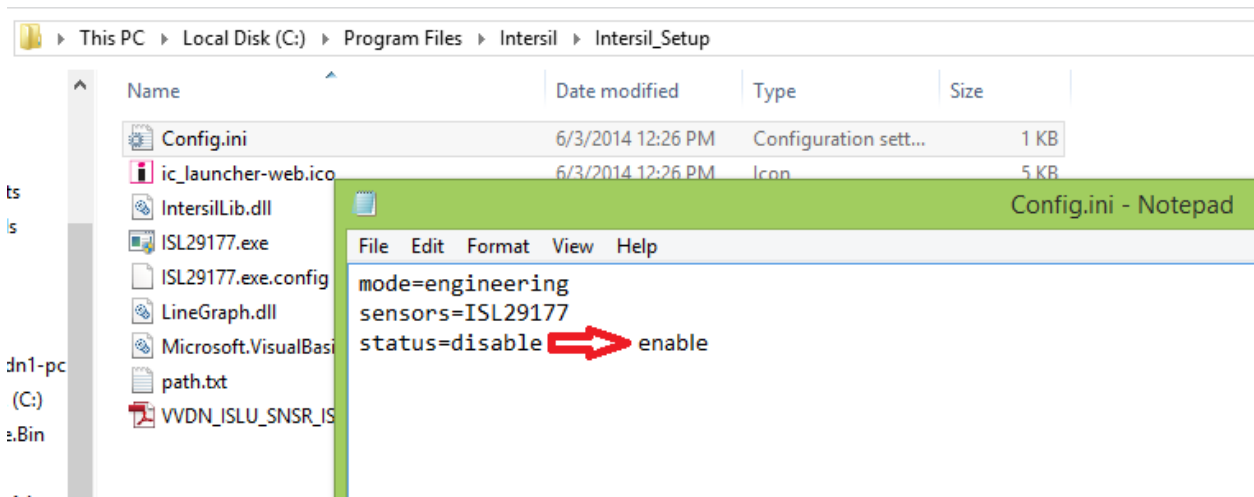
Read All

5.3 Engineering Mode:

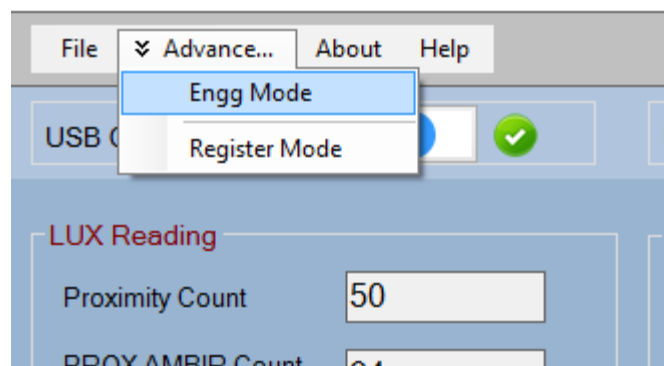
- It's a restricted mode only for Intersil personnel. It will enable only when we will enable it by going through config.ini file
- We can find this file where the setup is installed.by default we can get it

C:\Program Files\Intersil\Intersil_Setup

- Select Config.ini file
- Make status **enable** from **disable** in order to enable the engineering mode



- Now Select the Engineering mode from the Application.



Engineering Mode

☐ Disable Write

PROX Config [0x01]

Proximity Status ☒ Enable

PROX SLP 25ms / Select

PROX CURR 10.7mA Select

PROX Config1 [0x02]

PROX PULSE ☐

HIGH OFFSET ☒

PROX BSCAT 11 0

Threshold

[0x04] PROX LT 08 0

[0x05] PROX HT FE 0

INT Config [0x03]

PROX PRST 8 conv Select

IRDR TRIM ☐

PROX FLAG ☒

PROX DONE ☒

IRDR SHRT ☐

INT WASH ☐

Status[0x06]

I2C Fault detection ☐

PROX interrupt flag ☐

PROX conversion intr ☒

LOW IRDR VDS DETECT ☐

PROX wahsout flag ☐

Prox_Data[0x07]

PROX SENS DATA 2A

Prox_Functional_Data[0x08]

PROX DAC DATA 6C

TEST_MODE1[0x09]

Software Reset

TEST_MODE2[0x0A]

PROX CNT 00

TEST_MODE3[0x0B]

PROX SLEEP CTRL Normal Select

MEAS REXT 0 Select

REXT SELECT 500K Select

IBIAS CNTRL 0nA Select

TEST_MODE4[0x0C]

RESIDUE CTRL 01 Select

PROX TEST 500nA Select

TEST_MODE5[0x0D]

OTP DONE ☒

GOLDEN ☐

I2C ADDR 44h

IRDR Current Current Pl Select

REG CTRL 2K Select

ANATEST EN 0 Select

INT FUNC PROX INT Select

FUSE_REG[0x0E]

IRDR TRIM -12% Select

PROX OSADJ 4CTS Select

PROX GAIN 11.5k Lu Select

ID FUSE 0 Select

FUSE_CTRL[0x0F]

EMULATION Reg Slct Select

OTP DATA 00

WR_EN Disable Select

FUSE ADDR 00 0

- We can configure the particular bits of separate Engineering mode registers by selecting ENABLE WRITE.

Engineering Mode

☒ Enable Write

PROX Config [0x01]

Proximity Status ☒ Enable

PROX SLP 25ms / Select

PROX CURR 10.7mA Select

PROX Config1 [0x02]

PROX PULSE ☐

HIGH OFFSET ☒

PROX BSCAT 11 0

Threshold

[0x04] PROX LT 08 0

[0x05] PROX HT FE 0

INT Config [0x03]

PROX PRST 8 conv Select

IRDR TRIM ☐

PROX FLAG ☒

PROX DONE ☒

IRDR SHRT ☐

INT WASH ☐

Status[0x06]

I2C Fault detection ☐

PROX interrupt flag ☐

PROX conversion intr ☒

LOW IRDR VDS DETECT ☐

PROX wahsout flag ☐

Prox_Data[0x07]

PROX SENS DATA 2A

Prox_Functional_Data[0x08]

PROX DAC DATA 6C

TEST_MODE1[0x09]

Software Reset

TEST_MODE2[0x0A]

PROX CNT 00

TEST_MODE3[0x0B]

PROX SLEEP CTRL Normal Select

MEAS REXT 0 Select

REXT SELECT 500K Select

IBIAS CNTRL 0nA Select

TEST_MODE4[0x0C]

RESIDUE CTRL 01 Select

PROX TEST 500nA Select

TEST_MODE5[0x0D]

OTP DONE ☒

GOLDEN ☐

I2C ADDR 44h

IRDR Current Current Pl Select

REG CTRL 2K Select

ANATEST EN 0 Select

INT FUNC PROX INT Select

FUSE_REG[0x0E]

IRDR TRIM -12% Select

PROX OSADJ 4CTS Select

PROX GAIN 11.5k Lu Select

ID FUSE 0 Select

FUSE_CTRL[0x0F]

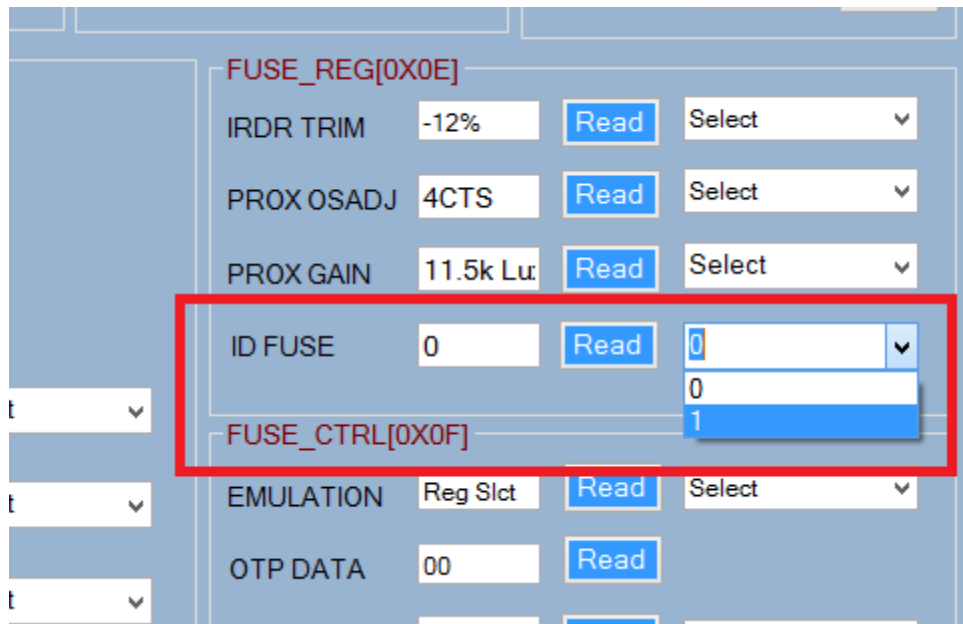
EMULATION Reg Slct Select

OTP DATA 00

WR_EN Disable Select

FUSE ADDR 00 0

- We can change the device selection ISL29177 to ISL29167 by changing the ID Fuse bit 0 to 1 respectfully and get the functionality of the ISL29167 device.



- We can observe this difference on the front screen in customer mode.

